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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/814,183	04/01/2004	Takehiro Yoshida	2004_0504A	6452

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EXAMINER	
KANG, INSUN	

ART UNIT	PAPER NUMBER
2193	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/814,183	YOSHIDA ET AL.	
	Examiner	Art Unit	
	INSUN KANG	2193	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 January 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 10-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 10-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 January 2009* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the amendment filed on 1/21/2009.

2. Claims 1-3 and 10-12 are pending in the application.

Drawings

3. Drawings filed on 1/21/2009 have been accepted.

Specification

4. The objection to specification has been withdrawn due to applicant's remark.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishiwata (US Pub.No. 2002/0016957 published on 2/7/2002), in view of Hsieh (US Patent 7,093,241), and further in view of Merrick et al. (US 6,339,841) hereafter Merrick.

Per claim 1:

Ishiwata discloses:

- A program linking program recorded on a storage medium for causing a computer having a memory to function at least as: linking means for linking a plurality of unlinked programs to form a pre-linked program for advancing toward the completion of a linked program (i.e. "A linker starting station 12 starts a liner 17 based on the linking order held by the linking order section 11a and causes it to

execute the linking process, and thus an executable object 18 is formed," page 4, 0086)

- storage means for storing the pre-linked program in memory before completion of the linked program (i.e. "the storing section 14 stores the minimum program size out of the formed executable objects 18 by repeating respective steps by a repeating section 15," page 4, 0090 where the storing step is repeated, it is considered to be performed both before and after completion of each linking);
- and, management means for causing the linking means to preferentially perform linking of the plural unlinked programs to form the pre-linked program, in predetermined priority order (i.e. "The linking order forming section 51 is a unit that forms the linking order of the intermediate objects 56," page 7, 0161; "the minimum program size and the linking order of the intermediate objects 56 used when the executable object 58 having this minimum program size is obtained are stored in the storing section 54," page 7, 0165).

Ishiwata discloses obtaining the minimum program size by the linker order forming section but does not explicitly teach ensuring linking in a predetermined priority order such that cumulative sum of sizes of the unlinked programs is within a range in which overflow of a predetermined capacity of the memory does not occur. However, Hsieh teaches such a buffer overflow check was known in the pertinent art, at the time applicant's invention was made, to ensure sufficient memory space to accommodate data storage (i.e. col. 1 lines 63-67). It would have been obvious for one having ordinary skill in the art to modify Ishiwata's disclosed system to incorporate the teachings of Hsieh. The modification would be obvious because one having

ordinary skill in the art would be motivated to perform a memory boundary check to prevent buffer overflow that can cause potential memory fault or malicious memory exploitation.

Ishiwata further discloses:

-the predetermined priority order of decreasing order of time for linking each of the plurality of unlinked programs upon execution (i.e. "based on one genes of a predetermined number are formed first by the linking order forming section 11 to get the executable object 18…the program size of the executable object 18…the minimum value…of the program size," page 5, 0124-0126). However, Ishiwata does not explicitly teach an increasing order of frequency of use of each of the plurality of unlinked programs in the plurality of linked programs. However, Merrick teaches it was known in the pertinent art, at the time applicant's invention was made, to increase speed of operation and reduce the memory needs (col. 1 lines 45-50). It would have been obvious for one having ordinary skill in the art to modify Ishiwata and Hsieh's disclosed system to incorporate the teachings of Merrick. The modification would be obvious because one having ordinary skill in the art would be motivated to provide faster operation speed and reduction in the memory needed by linking only those programs that are actually referenced (col. 1 lines 55-62).

Per claim 2:

Ishiwata further discloses:

- wherein the management means causes the linking means to perform linking, and as a result determine cumulative sum of sizes of the unlinked programs(i.e. "The linking order forming section 51 is a unit that forms the linking order of the intermediate objects 56," page 7, 0161; "the minimum program size and the

linking order of the intermediate objects 56 used when the executable object 58 having this minimum program size is obtained are stored in the storing section 54," page 7, 0165).

Per claim 3:

Ishiwata further discloses:

- wherein the management means determines the cumulative sum of sizes of the unlinked programs by evaluating the size of each of the plurality of linked programs at each stage of linking without causing the linking means to perform linking (i.e. "a comparing step which compares program size of the executable objects obtained by the linking processing step with the program size of a executable objects stored in a storing section every time when the liking order is changed," page 1, 0014).

Per claim 10, it is the method version of claim 1, respectively, and is rejected for the same reasons set forth in connection with the rejection of claim 1 above.

7. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishiwata (US Pub.No. 2002/0016957 published on 2/7/2002) in view of Hsieh (US Patent 7,093,241).

Per claim 11:

Ishiwata discloses:

- linking means for linking a plurality of unlinked programs to form a pre-linked program for advancing toward the completion of a linked program (i.e. "A linker starting station 12 starts a liner 17 based on the linking order held by the linking order section 11a and causes it to execute the linking process, and thus an executable object 18 is formed," page 4, 0086)
- storage means for storing the pre-linked program in memory before completion of the linked program (i.e. "the storing section 14 stores the minimum program size out of the formed executable objects 18 by repeating respective steps by a repeating section 15," page 4, 0090 where the storing step is repeated, it is considered to be performed both before and after completion of each linking);
- and, management means for causing the linking means to preferentially perform linking of the plural unlinked programs to form the pre-linked program, in predetermined priority order (i.e. "The linking order forming section 51 is a unit that forms the linking order of the intermediate objects 56," page 7, 0161; "the minimum program size and the linking order of the intermediate objects 56 used when the executable object 58 having this minimum program size is obtained are stored in the storing section 54," page 7, 0165).

Ishiwata discloses obtaining the minimum program size by the linker order forming section but does not explicitly teach ensuring linking in a predetermined priority order such that cumulative sum of sizes of the unlinked programs is within a range in which overflow of a predetermined capacity of the memory does not occur. However, Hsieh teaches such a buffer overflow check was known in the pertinent art, at the time applicant's invention was made, to

ensure sufficient memory space to accommodate data storage (i.e. col. 1 lines 63-67). It would have been obvious for one having ordinary skill in the art to modify Ishiwata's disclosed system to incorporate the teachings of Hsieh. The modification would be obvious because one having ordinary skill in the art would be motivated to perform a memory boundary check to prevent buffer overflow that can cause potential memory fault or malicious memory exploitation.

Ishiwata further discloses:

-the predetermined priority order is a decreasing order of time for linking each of the plurality of unlinked programs upon execution (i.e. "based on one genes of a predetermined number are formed first by the linking order forming section 11 to get the executable object 18…the program size of the executable object 18…the minimum value…of the program size," page 5, 0124-0126).

Per claim 12, it is the method version of claim 1, respectively, and is rejected for the same reasons set forth in connection with the rejection of claim 1 above.

Response to Arguments

8. Applicant's arguments filed on 1/21/2009 have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., in the pre-linked program stored in the memory before completion, linking is performed in such a manner that the number of redundant unlinked programs becomes small, so that an effect of reducing storage of the redundant unlinked programs in pre-linked programs can be achieved," remark 6) are not recited in the rejected claim(s). Although the claims are interpreted in light of the

specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

The application further states that Merrick does not disclose forming a pre-linked program by selecting unlinked programs to be linked in an increasing order of frequency of use of each of the plurality of unlinked programs in the plurality of linked programs and liking the same (remark, 7).

In response, first, the instant specification does not describe a specific implementation of obtaining the frequency order of use of programs. With respect to the "increasing order of frequency of use" recited in the claims, initially, no reference or minimum reference would be made, and the loading and linking would expand as more references will be required as the program execution continues and more components are needed to be referenced. Specifically, Merrick discloses granularity of class loading that enables to load and use components when needed to increase the speed of loading/linking operation and a reduction in memory needed (col. 1 lines 45-61). Therefore, the order of the initial loading with no reference, at least one method loaded when referenced and thereafter, and loading of needed components that may be further used/referenced can be considered to be as loading and linking in an increasing order of frequency of use in Merrick.

The applicant states that Ishiwata does not disclose linking in a decreasing order of time for linking each of unlinked programs upon execution. Furthermore, time for linking upon execution is not disclosed in Ishiwata (remark, 8-9).

In response, Ishiwata discloses forming the linking order in a minimum program size from the linking order section 11a to obtain fast execution (i.e. “based on one genes of a

predetermined number are formed first by the linking order forming section 11 to get the executable object 18…the program size of the executable object 18…the minimum value…of the program size," page 5, 0124-0126). The minimum program size requires less linking time and therefore execution time, accordingly, the minimum program size linking order can be considered to be in decreasing order of linking/execution time.

Conclusion

9. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to INSUN KANG whose telephone number is (571)272-3724. The examiner can normally be reached on M-R 7:30-6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lewis A. Bullock, Jr. can be reached on 571-272-3759. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information

regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Insun Kang/
Examiner, Art Unit 2193

/Lewis A. Bullock, Jr./
Supervisory Patent Examiner, Art Unit 2193